XXIV International Congress of Entomology
'New Era in Entomology'
August 19-25, 2012 | Daegu, Korea
ICE2012 DAEGU KOREA

Key steps of a successful biological control against the sugarcane stemborer by inundative release of *Trichogramma* spp.

Elisabeth Tabone[1], Marlene Marquier[2], Clarisse Clain[3], Estelle Roux[4], Francois-Regis Goebel[5], Jacques Frandon[6], Etty Colombel[7], Hong Do Thi Khanh[8]

[1]INRA - Nice, France, [2]FDGDON-Reunion , France, [3]FDGDON-Reunion, France, [4]FDGDON-Reunion, France, [5]CIRAD, France, [6]Compagny BIOTOP, France, [7]INRA - Nice, France, [8]INRA - Nice, France

For over ten years, a biological control strategy by inundative release of Trichogramma chilonis (Hymenoptera: Trichogrammatidae) against Chilo sacchariphagus (Lepidoptera: Crambidae) has been studied (French collaboration between INRA, CIRAD and FDGDON Reunion Island). Many key steps were elaborated the last years regarding the pest and beneficial insects. Strategies of biological control, mass production, and field releases were also investigated. Important results were obtained such as: (i) population dynamic of Chilo sacchariphagus and damage, (ii) efficacy of the egg parasitoid Trichogramma chilonis, (iii) strategies of insect release (period, dose, frequency, adapted packaging, and delayed emergence), (iv) optimization of mass production, (v) cold storage, (vi) field release methods and checking of field efficacy. An IPM strategy associating inundative release of an egg parasitoid, T. chilonis and conservation of a predatory ant, Pheidole megacephala, has been proposed. According to field experiments in Reunion Island, this reduced up to 50% of damage with financial gains ranging from 800 to 1800 dollars per ha. Successful long-term storage of T. chilonis and its good efficacy in field after cold storage make possible a large-scale application of IPM strategies in sugarcane production.

Keywords:*Chilo sacchariphagus, Trichogramma chilonis, cold storage, diapause, quiescence, mass production, sugarcane, Lepidoptera*